California Monthly Climate Summary
October 2013

Weather Highlights

October 2013 was a cool, dry month for California. According to the Western Region Climate Center's California Climate Tracker, the monthly average temperature was 56.3°F which is 2.0°F lower than the long-term average of 58.3°F. With a statewide average of 0.20 inches, precipitation in October was 16% of average. This is the driest January to October on record with a total of 5.67 inches of precipitation. The mean for this period is 16.17 inches. The previous record low was in 2002 when 7.85 inches was recorded. Regional maximum and minimum temperature and precipitation plots for October and for the January through October time period are shown at the end of the document.

October began with a fall-like pattern of cooler weather in the north and Santa Ana winds in the south. In the second week, a weak storm front passed over the North Coast with some scattered showers falling in the northern mountains. Elsewhere temperatures were slightly above normal under sunny skies. Towards the latter part of the month, a pair of low pressure systems dropped out of the Gulf of Alaska bringing rain and snow to the state along with gusty winds and cooler temperatures.

Preliminary records, reported on the National Weather Service Record Event Report, show that statewide there were 41 temperature records tied or broken and 1 precipitation record set for the month. Of the 41 temperature records set, 17 were for new low maximum temperatures and 16 were for new low minimum temperatures. Records were set over 16 days of the month. The only precipitation record set for the month was in Bishop on October 9th when 0.13 inches were recorded. This broke the old daily record of 0.09 inches set in 1960. Also on October 9th, several low maximum records were set. Oxnard tied their 1933 record of 64°F while UCLA broke their 1955 record of 67°F with a reading of 63°F. Woodland Hills broke their 1961 record of 68°F with a reading of 61°F. Bob Hope airport broke their 1960 record of 68°F with a reading of 63°F. Fresno tied their 1960 record of 65°F.

For the California Data Exchange Center's (CDEC) network of temperature gages used in this report, 130 stations recorded a minimum temperature below freezing during the month while zero stations reached or exceeded 100°F at least once during the month. Statewide extremes from the CDEC network of temperature gages are shown below. Also shown are the monthly average extremes from the CIMIS network. A table of regional average minimum, mean, and maximum temperatures from the CDEC stations is also shown at the end of the summary.

Precipitation in October was below average across the state. For the CDEC precipitation gages, the largest amount of precipitation recorded for the month was at Cuyamaca Dam in the South Coast region with 3.96 inches. This is 268% of the average precipitation for this station for the month. At the other end of the spectrum, 16 stations recorded no precipitation for the month. For the CIMIS network, Irvine in

Orange County topped the precipitation charts with 1.50 inches for the month and 54 stations recorded no precipitation. Some CIMIS gages may show large precipitation totals if the gages are not covered during irrigation activities so care should be given to review precipitation data used from this network.

The 8-Station Index for northern California precipitation recorded 0.8 inches in October. On average, 3.0 inches of precipitation is recorded for the month. For the combined January to October total, the 8-Station Index is 13.93 inches which is the lowest Jan-Oct total in the period of record which dates back to water year 1921. The lowest value was 16.69 inches set in 1946. Statewide, the average precipitation for the month was 26.8% of the long-term average based on the California Data Exchange Center (CDEC) gages. Precipitation percentages by region from the CDEC gages are shown in a table at the end of this document.

CoCoRaHS Update

October 2013 starts California's sixth year with CoCoRaHS – the Community Collaborative Rain, Hail and Snow Network. This group uses citizen volunteers to record rain, hail and snow data. The users enter the data online at the CoCoRaHS web site. The web site provides the opportunity to see spatial detail of rain and snow patterns. A map from October 28, 2013 is shown at the end of the document. As of the end of October, California has 1063 volunteers signed up spanning 54 of California's 58 counties. The counties without volunteers are Alpine, Colusa, Glenn, and Modoc. The county with the most volunteers at the end of October is Sonoma with 98 volunteers. San Diego County is close behind with 96 volunteers. For the month of October, 10,199 reports were recorded for California. The largest daily rain total for CoCoRaHS- CA in October was in Madera County where 1.41 inches was recorded on 10/29/2013. There were 22 snowfall reports recorded with the largest being 14 inches in Placer County on 10/28/2013. No hail reports were submitted in October. To join CoCoRaHS or find more information, please visit http://www.cocorahs.org.

Snowpack and Water Supply Conditions

The Water Supply Index (WSI) for WY2013 for the Sacramento Basin fell into the dry category and the San Joaquin fell into the critical category. Further information can be found at http://cdec.water.ca.gov/water_supply.html. A historical listing of water year categories for both basins can be found at http://cdec.water.ca.gov/cgi-progs/iodir/WSIHIST.

Drought Monitor and Seasonal Outlook

The maps for California for September 24, 2013 and October 29, 2013 are shown below. The Drought Monitor maps can be found on the NDMC website http://drought.unl.edu/dm/. These maps are largely a reflection of precipitation and soil moisture deficit estimates. As of the October 29th depiction, 11.36% of California

is depicted in D3 or extreme drought, 78.48% of California is depicted in the D2 or severe drought category, 6.2% of California is depicted in the D1 or moderate drought category. An additional 1.33% of the state is depicted as D0 or abnormally dry and 2.63% of the state is drought free. Maps are updated weekly.

The U.S. Seasonal Drought Outlook for November through January from NOAA depicts California in persisting drought throughout the state with some improvement on the North and Central Coast and in parts of the Sacramento Valley. This forecast is based primarily on climatology and forecast models. Maps and information can be found at http://www.cpc.noaa.gov/products/expert_assessment/seasonal_drought.html. Updates are provided twice per month.

For more information on water conditions in California, visit http://www.water.ca.gov/waterconditions/. A table showing end-of-month reservoir storage by hydrologic region is shown at the end of this document. Statewide, reservoir storage at the end of October was 77% of average. At the end of October 2012, storage was 95% of average.

ENSO Conditions and Long-Range Outlooks

The El Niño/Southern Oscillation (ENSO) is currently in neutral conditions. Equatorial sea surface temperature anomalies for the tropical Pacific have been normal with values of 0.0°C in the Niño 3.4 at the end of October. The August through October 3-month running mean of the Ocean Niño Index (ONI) is -0.3. Five consecutive ONI values need to be below the threshold o f -0.5 for conditions to be classified as a La Niña event (five consecutive values above the 0.5 threshold need to be observed for classification as an El Niño event). Most forecast models have the tropical sea surface remaining near neutral conditions for the rest of the calendar year. More information can be found at the Climate Prediction Center's web site: http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/ Updates are posted weekly. The latest three month outlook (November through January) from NOAA indicates a higher probability of above normal temperatures for the eastern part of the state south of Lake Tahoe. For precipitation, equal chances of above or below normal conditions apply across the state. Outlook plots and discussions can be fount at http://www.wrcc.dri.edu/longrang/. General weather information of interest can be found at http://www.noaawatch.gov/. For anomaly information please see http://www.wrcc.dri.edu/anom/cal_anom.html.

Agricultural Data

October 2013 saw crop harvests progress throughout the state. Most of the rice crop had been harvested during the month. Alfalfa continued to be cut and baled while winter wheat planting began. Black-eyed peas, Sudan grass, and corn were also harvested. Almond, pistachio, and walnut harvests neared completion with finished orchards being irrigated, fertilized, and pruned. Table grape harvest continued. Prune and fig harvests were finished. Pears, apples, and kiwifruit harvests neared completion. Olive harvest was ongoing for both oil and table varieties. Oroblanco

grapefruit, lemons, and oranges continued to be harvested. Fall vegetables were also harvested across the state. Range conditions deteriorated in the warm weather and were reported to be in fair to very poor condition. Supplemental feeding continued and ranchers have been searching for winter feed. Calving season began in coastal regions. For further crop information see http://www.nass.usda.gov/index.asp.

Other Climate Summaries

California Climate Tracker (new product of Western Region Climate Center)
Golden Gate Weather Service Climate Summary
NOAA Monthly State of the Climate Report

Statewide Extremes (CDEC)

High Temperature – 99°F (Beverly Hills, South Coast)
Low Temperature – -1°F (Tunnel Guard Station, Tulare)
High Precipitation – 3.96 inches (Cuyamaca Dam, South Coast)
Low Precipitation – 0 inches (16 stations)

Statewide Extremes (CIMIS)

High Average Maximum Temperature – 88.5^{0}F (UC San Luis, Imperial County)
Low Average Minimum Temperature – 21.9^{0}F (Alturas, Modoc County)
High Precipitation – 1.50 inches (Irvine, Orange County)*
Low Precipitation – 0 inches (54 stations)
*Sometimes irrigation water from sprinklers gets counted as precipitation if the gage is not covered.

Statewide Precipitation Statistics

Hydrologic Region	Region Weight	Basin Reporting			Stations Reporting			% of Historic Average	
		Basins	Oct	Oct	Stations	Oct	Oct	Oct	Oct
North Coast	0.27	5	4	4	17	7	7	0.6%	0%
SF Bay	0.03	2	2	2	6	5	5	0.1%	0%
Central Coast	0.06	3	3	3	11	5	5	30.9%	31%
South Coast	0.06	3	3	3	14	12	12	97.9%	98%
Sacramento River	0.26	5	5	5	41	24	24	15.6%	16%
San Joaquin River	0.12	6	6	6	24	15	15	34.0%	34%
Tulare Lake	0.07	5	5	5	28	20	20	62.8%	63%
North Lahontan	0.04	3	2	2	13	4	4	44.3%	44%
South Lahontan	0.06	3	3	3	15	7	7	45.3%	45%
Colorado River	0.03	1	1	1	6	1	1	63.6%	64%
Statewide Weighted Average	1	36	34	34	175	100	100	26.8%	27%

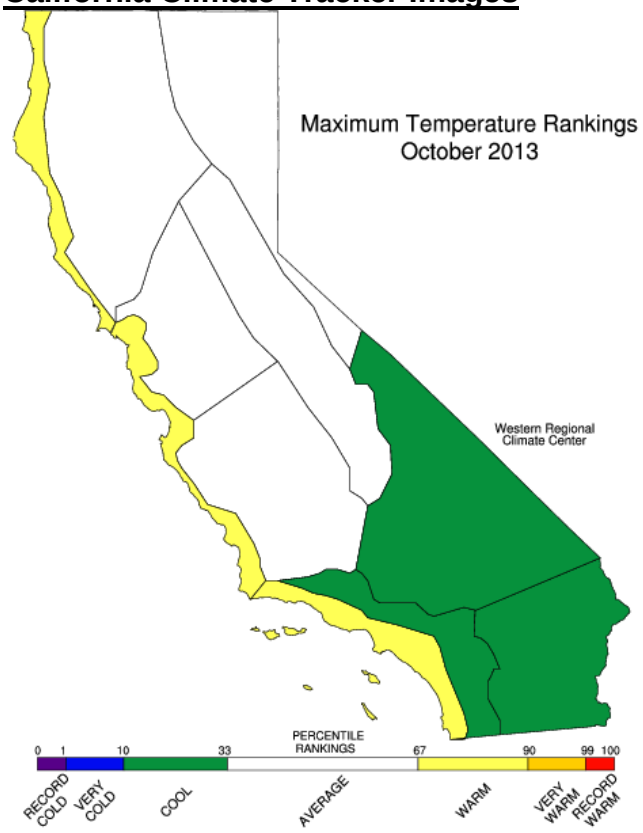
Statewide Mean Temperature Data by Hydrologic Region (degrees F)

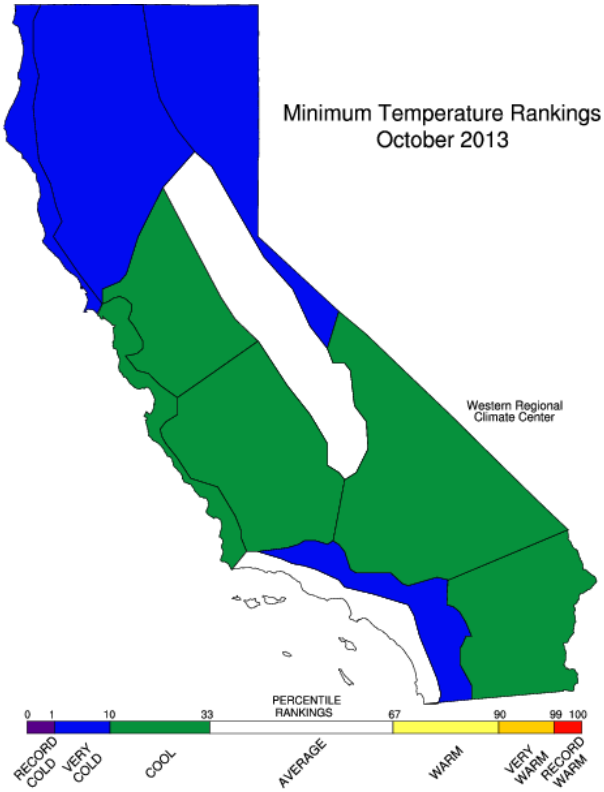
Hydrologic Region	No. Stations	Minimum	Average	Maximum
North Coast	19	32.9	51.1	78.4
SF Bay	9	42.7	61.4	81.2
Central Coast	10	37.8	59.2	87.0
South Coast	40	40.4	62.1	88.7
Sacramento	74	32.0	52.6	79.5
San Joaquin	43	28.4	51.1	77.6
Tulare Lake	19	21.3	44.7	69.3
North Lahontan	26	20.5	41.1	67.6
South Lahontan	14	22.4	46.7	74.9
Colorado River Desert	7	45.0	70.2	93.7
Statewide Weighted Average	261	31.6	52.4	79.0

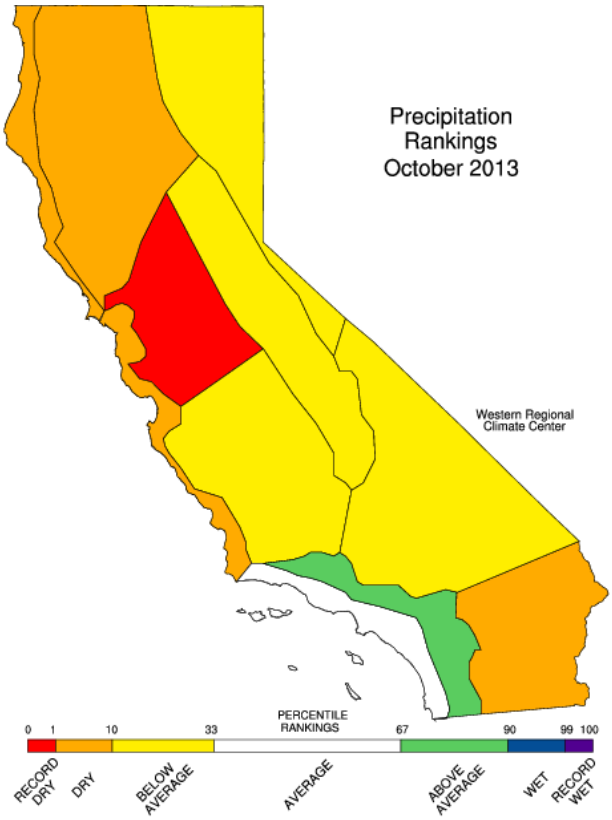
End-of-Month Reservoir Storage by Hydrologic Region
Storage in Thousand Acre-Feet (taf)

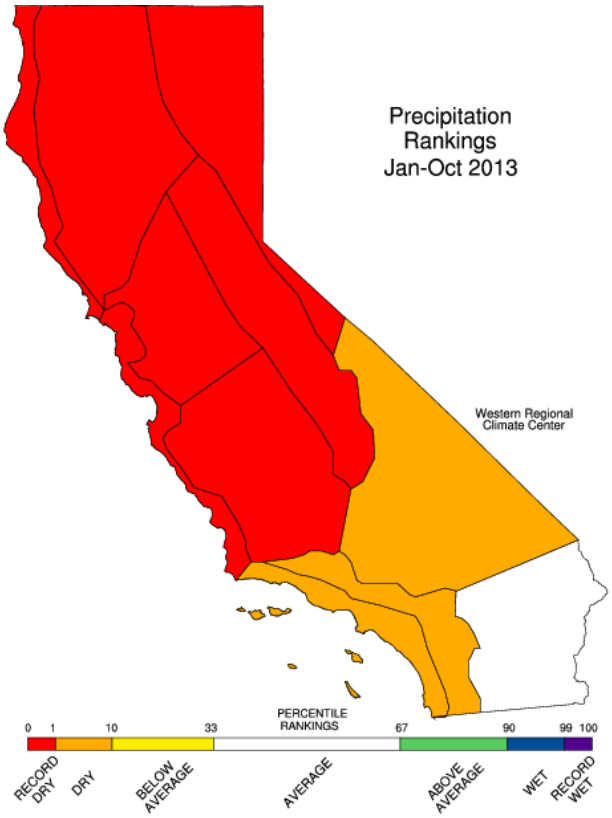
End-of-October Reservoir Storage	Number of Reservoirs	Average Storage (taf)	2013 Storage (taf)	% of Average
North Coast	6	1,894	1,474	78%
San Francisco Bay	17	402	381	95%
Central Coast	6	524	232	44%
South Coast	29	1,285	1,137	88%
Sacramento	43	9,493	7,458	79%
San Joaquin	34	6,176	4,768	77%
Tulare	6	637	319	50%
North Lahontan	5	465	290	62%
South Lahontan	8	272	218	80%
Total	154	21,151	16,280	77%

California Climate Tracker Images






Precipitation
Rankings
October 2013
Western Regional
Climate Center
PERCENTILE
RANKINGS
0 1 10 33 67 90 99 100
RECORD
DRY
DRY
BELOW
AVERAGE
AVERAGE
ABOVE
AVERAGE
WET
RECORD
WET


Precipitation
Rankings
Jan-Oct 2013
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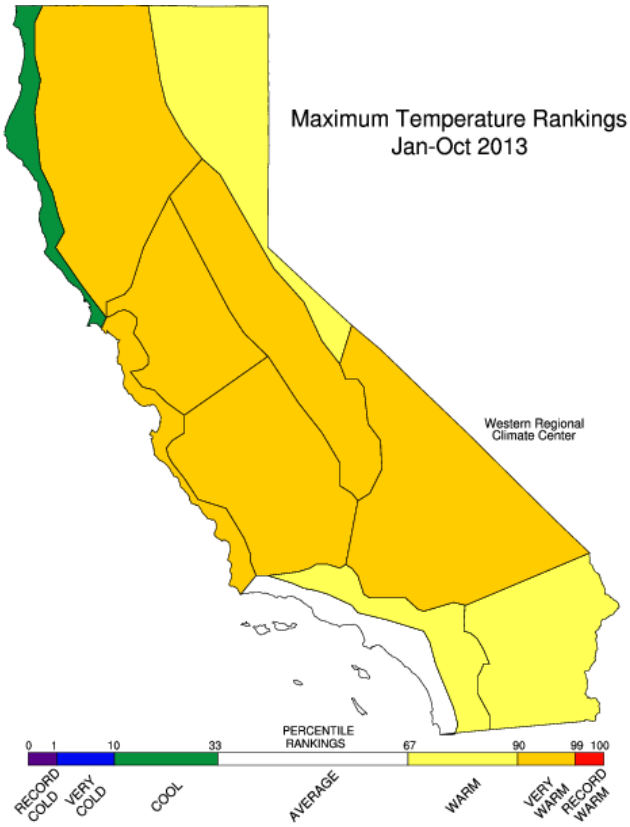
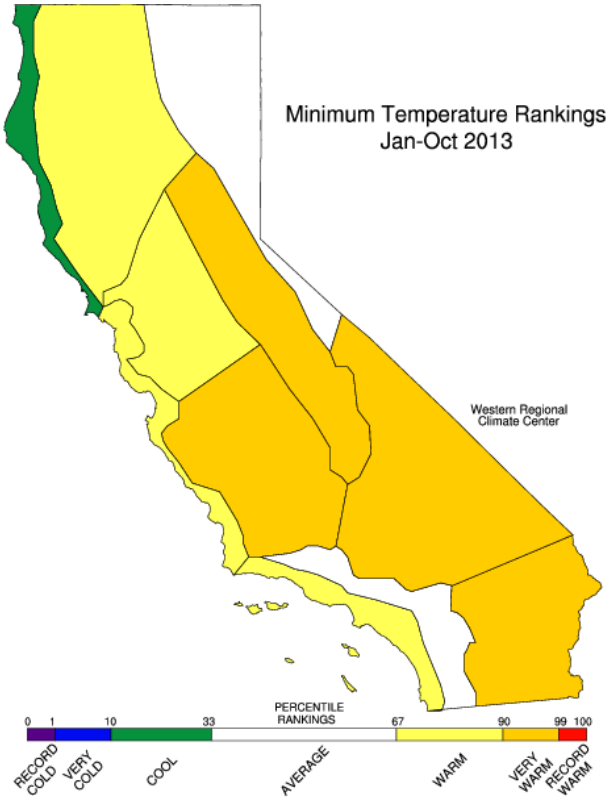

Maximum Temperature Rankings
Jan-Oct 2013
Western Regional
Climate Center
PERCENTILE
RANKINGS
0 1 10 33 67 90 99 100
RECORD COLD
VERY COLD
COOL
AVERAGE
WARM
VERY WARM
RECORD WARM


Minimum Temperature Rankings
Jan-Oct 2013
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0 1 10 33 67 90 99 100
RECORD COLD
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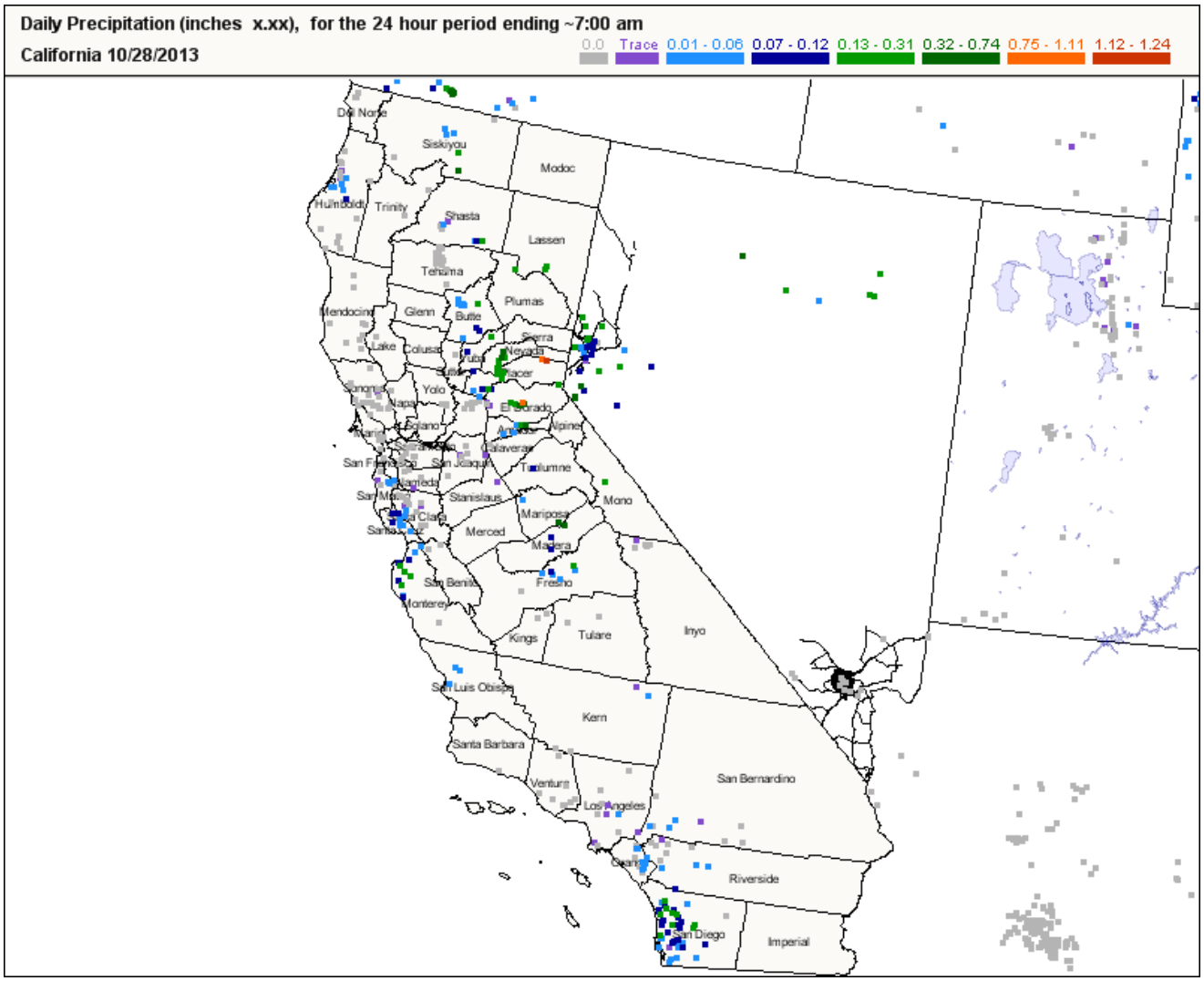
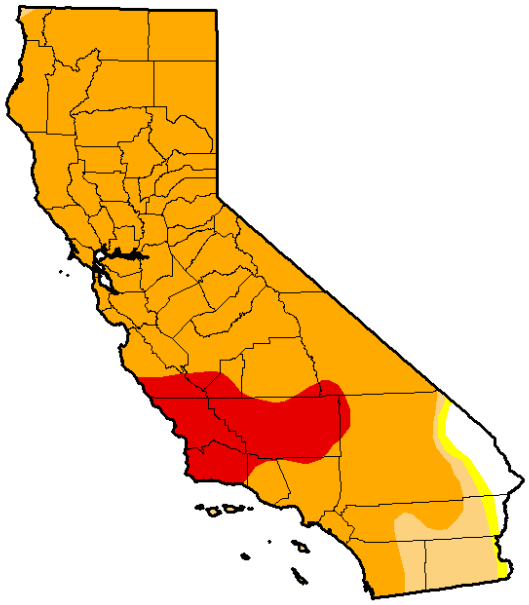
COOL
AVERAGE
WARM
VERY WARM
RECORD WARM

CoCoRaHS Map



U.S. Drought Monitor
California



September 24, 2013
(Released Thursday, Sep. 26, 2013)
Valid 7 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	2.63	97.37	96.04	89.84	11.36	0.00
Last Week 9/17/2013	2.63	97.37	96.04	89.84	11.36	0.00
3 Months Ago 6/25/2013	0.00	100.00	98.21	92.61	0.00	0.00
Start of Calendar Year 1/1/2013	31.75	68.25	55.32	22.50	0.00	0.00
Start of Water Year 9/25/2012	11.95	88.05	69.41	22.27	1.14	0.00
One Year Ago 9/25/2012	11.95	88.05	69.41	22.27	1.14	0.00

Intensity:
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

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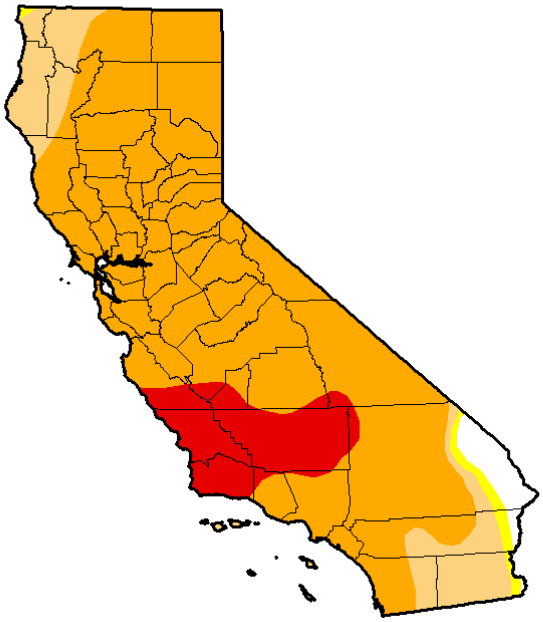
http://droughtmonitor.unl.edu/

U.S. Drought Monitor
California



October 29, 2013
(Released Thursday, Oct. 31, 2013)
Valid 7 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	2.66	97.34	95.98	84.12	11.36	0.00
Last Week 10/22/2013	2.66	97.34	95.98	84.12	11.36	0.00
3 Months Ago 7/30/2013	0.00	100.00	98.23	93.86	0.00	0.00
Start of Calendar Year 1/1/2013	31.75	68.25	55.32	22.50	0.00	0.00
Start of Water Year 10/1/2013	2.63	97.37	95.95	84.12	11.36	0.00
One Year Ago 10/30/2012	6.73	93.27	68.48	19.10	1.14	0.00

Intensity:
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

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